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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,842	11/12/2003	Paul S. Andry	YOR920010100US2 (8728-493)	6927
22150	7590	01/26/2006	EXAMINER	
F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797			HON, SOW FUN	
			ART UNIT	PAPER NUMBER
			1772	
DATE MAILED: 01/26/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/706,842

**Applicant(s)**

ANDRY ET AL.

**Examiner**

Sow-Fun Hon

**Art Unit**

1772

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 15-19 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-19 and 21-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

***Rejections Withdrawn***

1. The 35 U.S.C. 102(b) and 103(a) rejections have been withdrawn due to Applicant's amendment dated 11/07/05.

***New Rejections***

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear whether the "material" is the one adjusting the stoichiometric ratio of the constituent materials, or one of the constituent materials.

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 15, 19, 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobale (US 4,201,453).

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Regarding claim 15, Kobale teaches a liquid crystal display device (column 1, lines 1-2), comprising: an alignment layer (comparable to silicon oxide layer but is homeotropically oriented, column 1, lines 66-68, column 2, line 1), comprising constituent materials, the constituent materials having a stoichiometric ratio adjusted by an amount of material (elements of silicon and an additive selected from the elements of boron, tin and titanium, at a predetermined ratio of one to the other, column 2, lines 10-16), and liquid crystal material in contact with the alignment layer (column 2, lines 15-16). Kobale teaches  $\text{SiO}_x$ , as a silicon oxide material for the alignment layer, wherein  $x$  is adjusted to provide a stoichiometric ratio ( $1.5 < x \leq 2$ , column 2, lines 18-21).

Even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113 [R-1]. In the instant case, the process limitation of "having a stoichiometric ratio adjusted by an amount of material, the amount determined to provide a given pretilt angle" is not given any patentable weight since the pretilt angle is inherent in the alignment layer.

Regarding claim 19, Kobale has been discussed above, and teaches that the alignment layer includes a homeotropic alignment layer (column 1, lines 65-68, column 2, line 1), and thus a tilted homeotropic alignment layer.

Regarding claim 21, Kobale teaches a liquid crystal display device (column 1, lines 1-2), comprising: an alignment layer (comparable to silicon oxide layer but is

homeotropically oriented, column 1, lines 66-68, column 2, line 1), comprising constituent materials, the constituent materials having a stoichiometric ratio adjusted by an amount of material (elements of silicon and an additive selected from the elements of boron, tin and titanium, at a predetermined ratio of one to the other, column 2, lines 10-16), and liquid crystal material in contact with the alignment layer (column 2, lines 15-16). Kobale teaches  $\text{SiO}_x$ , as a silicon oxide material for the alignment layer, wherein  $x$  is adjusted to provide a stoichiometric ratio ( $1.5 < x \leq 2$ , column 2, lines 18-21).

Even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113 [R-1]. In the instant case, the process limitation of "for adjusting a stoichiometric ratio of the constituent materials of the alignment layer, wherein the amount is determined to provide a given pretilt angle of the alignment layer different from the preexisting pretilt angle of the alignment layer" is not given any patentable weight since the final pretilt angle is inherent in the final alignment layer product.

4. Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Okada (US 6,221,444).

Okada teaches a liquid crystal display device (column 1, lines 4-6), comprising: an alignment material comprising a first material which provides a homeotropic alignment (column 17, lines 44-47); a second material introduced providing a more

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homogeneous alignment than the first material (column 17, lines 47-48) in an amount to provide a given pretilt-angle to the alignment layer (Resin B realized homogeneous alignment, and alone provided a pretilt angle of below 5 deg., mixed with Resin A to provide a pretilt angle of 30 deg., column 11, lines 58-63); and liquid crystal material in contact with the alignment layer (column 17, lines 35-40).

***Claim Rejections - 35 USC § 103***

5. Claims 16,18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobale as applied to claims 15, 19, 21 above, and further in view of Onuma (US 5,353,141).

Kobale has been discussed above, and teaches SiO<sub>x</sub>, as a material for the alignment layer, wherein x is adjusted to provide a stoichiometric ratio ( $1.5 < x \leq 2$ , column 2, lines 20-21). Kobale fails to teach that the material for the alignment layer includes SiC<sub>x</sub> wherein x is adjusted to provide the stoichiometric relationship.

However, Onuma teaches that SiC<sub>x</sub> can be used instead of SiO<sub>x</sub> (silicon carbide, silicon dioxide, column 7, lines 1-3) as the inorganic alignment layer (column 6, lines 67-68) for the purpose of utilizing its physical properties. SiC<sub>x</sub> is a material having Pi-electrons as defined in Applicant's specification (page 11, lines 5-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used SiC<sub>x</sub> in place of the SiO<sub>x</sub> in the inorganic alignment layer of Kobale, and to have adjusted x to provide a stoichiometric ratio as

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taught by Kobale, in order to provide an inorganic alignment layer with the desired pretilt angle, utilizing the physical properties of SiCx, as taught by Onuma.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobale as applied to claims 15, 19, 21 above, and further in view of Kaganowicz (US 5,011,268).

Kobale has been discussed above, and teaches SiOx, as a material for the alignment layer, wherein x is adjusted to provide a stoichiometric ratio ( $1.5 < x \leq 2$ , column 2, lines 20-21). Kobale fails to teach that the material for the alignment layer includes silicon oxynitride.

However, Kaganowicz teaches that the material for the alignment layer includes silicon oxide and silicon oxynitride (column 4, lines 60-63) for the purpose of utilizing the respective physical properties, wherein the material has all the properties needed for an effective alignment layer (column 3, lines 45-55) and required pretilt angle (column 3, lines 25-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used silicon oxynitride in place of the silicon oxide in the alignment layer of Kobale, in order to obtain the desired alignment utilizing the physical properties of silicon oxynitride, as taught by Kaganowicz.

7. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobale as applied to claims 15, 19, 21 above, and further in view of Chaudhari (US 6,195,146).

Kobale has been discussed above, and fails to teach ions directed at the alignment layer to provide uniformity of the pretilt angle.

However, Chaudhari teaches ions (beam of ion particles, column 2, lines 60-61) directed at the alignment layer to adjust the pretilt angle (column 2, lines 15-25). Chaudhari teaches that this method is a non-rubbing method, which circumvents the problems posed by the rubbing method (column 2, lines 10-15), such as difficulty in controlling the uniformity of the pretilt angle (stability and consistency difficult to achieve and control, column 1, lines 55-60). Thus, the method is for the purpose of providing uniformity of the pretilt angle of the alignment layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have directed ions at the alignment layer of Kobale, in order to provide uniformity of the pretilt angle, as taught by Chaudhari.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada as applied to claim 24 above, and further in view of Chaudhari (US 6,195,146).

Okada has been discussed above, and fails to teach ions directed at the alignment layer to control the uniformity of the pretilt angle.

However, Chaudhari teaches ions (beam of ion particles, column 2, lines 60-61) directed at the alignment layer to adjust the pretilt angle (column 2, lines 15-25). Chaudhari teaches that this method is a non-rubbing method, which circumvents the problems posed by the rubbing method (column 2, lines 10-15), such as difficulty in controlling the uniformity of the pretilt angle (stability and consistency difficult to achieve



and control, column 1, lines 55-60). Thus, the method is for the purpose of controlling the uniformity of the pretilt angle of the alignment layer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have directed ions at the alignment layer of Okada, in order to control the uniformity of the pretilt angle, as taught by Chaudhari.

### ***Response to Arguments***

9. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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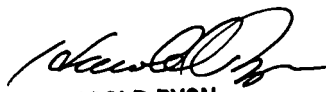
Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sow-Fun Hon

01/20/2006

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER

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1/23/06